

Claims

1. A portable air-conditioning unit, especially a personal air-conditioning unit, with a small-format housing (2) with a housing section (3) containing a latent heat storage unit (4, 4'), at which housing (2) an inlet (7, 7') for a gaseous or liquid medium, which is to be passed by the latent heat storage unit (4, 4'), exchanging heat there, and an outlet (10, 10') for discharging the cooled or heated medium, are provided, as well as with conveying means (8, 8') at the housing, which can be operated by way of an energy supply (9) and convey the medium for an autarc operation of the air-conditioning unit (1, 1').

2. The air-conditioning unit of claim 1, characterized in that the medium is a gas and the conveying means is a fan (8).

3. The air-conditioning unit of claim 2, characterized in that the inlet (7) is constructed as at least one aspiration opening for air from the surroundings, which is used as gas.

4. The air-conditioning unit of claim 3, characterized in that at least one outlet nozzle (12), leading to the surroundings, is provided at the outlet (10).

5. The air-conditioning unit of claim 4, characterized in that an outlet section (11) of any shape, consisting of a deformable and optionally skin-friendly material and having several outlet nozzles (12), is provided at the outlet (10).

6. The air-conditioning unit of claim 5, characterized in that the outlet section (11) is constructed essentially plate-like or half-plate-like and that the several outlet nozzles (12) point in different directions.

7. The air-conditioning units of claims 2 or 3, characterized in that connecting means (30) for coupling with a pipeline (33), in which the gas is passed on, are provided at the outlet (10').

8. The air-conditioning unit of claim 2, characterized in that connecting means (29, 30) for coupling with, in each case, a pipeline (33), carrying the gas, is provided at the inlet (7') and at the outlet (10').

9. The air-conditioning unit of claim 1, characterized in that a liquid is used as medium, the conveying means being a pump (8'), and in that connecting means (29, 30) for coupling each with a pipeline (33) carrying the liquid, are provided at the inlet (7') and at the outlet (10').

10. The air-conditioning unit of one of the preceding claims, characterized in that the housing (2) is thermally insulated at least in the region, in which the latent heat storage unit (4, 4') is provided, preferably, the whole of the housing (2) being thermally insulated.

11. The air-conditioning unit of one of the preceding claims, characterized in that, at a position downstream from the latent heat storage unit (4), a preferably electrically adjustable flap-like control element (17) is provided, by means of which the degree to which a first medium path (6), which passes the medium past the latent heat storage unit (4), and a second medium path (18), over which the medium, which is supplied to the housing (2), is not passed past the latent heat storage unit (4), are open, can be varied.

12. The air-conditioning unit of one of the preceding claims, characterized in that at least one cooling or heating device (19), which can be operated

electrically, is provided in the housing (2) at one position in the vicinity of the latent heat storage unit (4).

13. The air-conditioning unit of claim 12, characterized in that the cooling or heating device (19) can be operated over the integrated energy supply (9), or that means (21) are provided for connecting to an external energy supply for operating the cooling or heating unit (19).

14. The air-conditioning unit of claims 11 and 12 or 13, characterized in that at least one Peltier element (19) for cooling or heating the latent heat storage unit (4) is provided in a wall (20) of the housing separating the first and the second medium paths (6, 18).

15. The air-conditioning unit of claims 12 or 13, characterized in that the heating device (19) is a heating coil.

16. The air-conditioning unit of one of the claims 1 to 11, characterized in that an external station with a cooling or heating device for cooling or heating the latent heat storage unit, is provided, at or in which station the portable air-conditioning unit can be disposed.

17. The air-conditioning unit of claim 16, characterized in that the station has one or more Peltier elements for cooling or heating the latent heat storage unit or one or more heating coils for heating the latent heat storage unit.

18. The air-conditioning unit of one of the preceding claims, characterized in that the latent heat storage unit (4) can be removed from the housing (2).

19. The air-conditioning unit of one of the preceding claims, characterized in that the amount of medium flowing through can be varied.

20. The air-conditioning unit of claim 19, characterized in that at least one sensor and one electronic evaluating system (14), over which the conveying means (8, 8') can be controlled, are provided for detecting the amount flowing through or the temperature of the medium.

21. The air-conditioning unit of one of the preceding claims, characterized in that a display, indicating the extent to which the integrated energy supply (9) is charged, is provided.

22. The air-conditioning unit of one of the preceding claims, characterized in that a display, indicating the extent to which the latent heat storage unit is charged, is provided.

23. The air-conditioning unit of one of the preceding claims, characterized in that accumulators, batteries, fuel cells or solar cells (13) are provided as energy supply (9).

24. The air-conditioning unit of one of the preceding claims, characterized in that at least one cooling or heating compartment (22) for unrelated objects is provided, the temperature of which can be controlled over a further cooling or heating device (23), especially at least one Peltier element, which is assigned to the compartment.

25. The air-conditioning unit of one of the preceding claims, characterized in that the latent heat storage medium (4, 4') is water or paraffin.

26. The air-conditioning unit of one of the preceding claims, characterized in that a liquid medium, used in a closed system, has a freezing or sublimation point below the freezing point or above the sublimation point of the latent heat storage medium (4, 4').

27. The air-conditioning unit of one of the preceding claims, characterized in that the or each housing opening can be closed off.

28. The air-conditioning unit of claim 27, characterized in that a common operating element is provided, which preferably is lever-like and over which the closing elements of the housing openings and, optionally, the flap-like control element, assigned to the second medium path, can be actuated jointly.

29. The air-conditioning unit of one of the preceding claims, characterized in that a drain or collection device is provided for condensate deposited in the housing.

30. The air-conditioning unit of claim 29, characterized and that the collection device is a section of the housing or an element absorbing the condensate.

31. An air-conditioning system, comprising an air-conditioning unit (1') of one of the claims 1 to 26, as well as an article (34) of clothing, which is to be worn at the body of a person, with at least one integrated pipeline (33) for carrying the cooling or heating medium, connecting means (29, 30) for coupling with corresponding connecting means (31, 32) at the inlet and/or at the outlet of the pipeline (33) of the item (34) of clothing being provided at the inlet (7') and/or at the outlet (10') of the air-conditioning unit (1').

32. The air-conditioning system of claim 31, characterized and that the item of clothing is a complete suit or a part thereof.

33. A method for cooling a person, for which an air-conditioning unit of one of the claims 1 to 26 is used, which aspirates air from the surroundings, cools it and discharges it over at least one outlet nozzle, and which is disposed at the person in such a manner, that the air from the surroundings, which is discharged, is blown underneath the outer clothing onto the underwear or the skin of the person, so that, aside from the cooling effect due to the cooled air from the surroundings, an additional cooling effect is achieved by utilizing the heat of evaporation during the aeration-induced drying of the natural moisture of the underwear or of the skin.